IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. Cancelled

2. (Currently amended) ~~The method for a distributed medium access protocol of claim 1, which further comprises:~~ A method for a distributed medium access protocol that schedules transmission of different types of packets on a channel based on a service quality specification for each type of packet, comprising the steps of:

determining at a plurality of nodes in an access network, an urgency class of pending packets according to a scheduling algorithm;

transmitting pending packets in a given urgency class before transmitting packets of a lower urgency class;

remembering the number of transmission attempts by a node for the last transmission of same node;

estimating from said number of transmission attempts a current congestion experienced;

adjusting a backoff counter to current congestion levels to provide a dispersion of packet traffic bursts;

broadcasting with each transmission the number of transmission attempts by a node;

estimating from said number of transmission attempts received from other nodes the current congestion experienced; and

adjusting a backoff counter to current congestion levels to provide a dispersion of packet traffic bursts.

3. Cancelled

4. (Currently amended) ~~The method for a distributed medium access protocol of claim 1, which further comprises:~~ A method for a distributed medium access protocol

that schedules transmission of different types of packets on a channel based on a service quality specification for each type of packet, comprising the steps of:

determining at a plurality of nodes in an access network, an urgency class of pending packets according to a scheduling algorithm;

transmitting pending packets in a given urgency class before transmitting packets of a lower urgency class;

remembering the number of transmission attempts by a node for the last transmission of same node;

estimating from said number of transmission attempts a current congestion experienced;

adjusting a backoff counter to current congestion levels to provide a dispersion of packet traffic bursts;

remembering the number of transmission attempts for packets of every urgency class by a node for the last transmission in that class of same node;

estimating from said number of transmission attempts the current congestion experienced by the urgency class of a pending packet; and

adjusting a backoff counter for the pending packet to current congestion levels to provide a dispersion of packet traffic bursts.

5. (Currently amended) ~~The method for a distributed medium access protocol of claim 1, which further comprises:~~ A method for a distributed medium access protocol that schedules transmission of different types of packets on a channel based on a service quality specification for each type of packet, comprising the steps of:

determining at a plurality of nodes in an access network, an urgency class of pending packets according to a scheduling algorithm;

transmitting pending packets in a given urgency class before transmitting packets of a lower urgency class;

remembering the number of transmission attempts by a node for the last transmission of same node;

estimating from said number of transmission attempts a current congestion experienced;

adjusting a backoff counter to current congestion levels to provide a dispersion of packet traffic bursts;

broadcasting with each transmission the number of transmission attempts by a node and the assigned urgency class;

estimating from said number of transmission attempts received from other nodes the current congestion experienced by the urgency class of the pending packet; and

adjusting a backoff counter of the pending packet to current congestion levels to provide a dispersion of packet traffic bursts.

6. (Currently amended) ~~The method for a distributed medium access protocol of claim 1, which further comprises:~~ A method for a distributed medium access protocol that schedules transmission of different types of packets on a channel based on a service quality specification for each type of packet, comprising the steps of:

determining at a plurality of nodes in an access network, an urgency class of pending packets according to a scheduling algorithm;

transmitting pending packets in a given urgency class before transmitting packets of a lower urgency class;

remembering the number of transmission attempts by a node for the last transmission of same node;

estimating from said number of transmission attempts a current congestion experienced;

adjusting a backoff counter to current congestion levels to provide a dispersion of packet traffic bursts;

broadcasting with each transmission the number of transmission attempts by a node and the assigned urgency class;

estimating from said number of transmission attempts received from other nodes the current congestion experienced by the urgency class of the pending packet; and

adjusting a backoff counter of the pending packet to current congestion levels to provide a dispersion of packet traffic bursts.

7. (Currently amended) ~~The method for a distributed medium access protocol of claim 1, which further comprises:~~ A method for a distributed medium access protocol that schedules transmission of different types of packets on a channel based on a service quality specification for each type of packet, comprising the steps of:

determining at a plurality of nodes in an access network, an urgency class of pending packets according to a scheduling algorithm;

transmitting pending packets in a given urgency class before transmitting packets of a lower urgency class;

remembering the number of transmission attempts by a node for the last transmission of same node;

estimating from said number of transmission attempts a current congestion experienced;

adjusting a backoff counter to current congestion levels to provide a dispersion of packet traffic bursts; and

initializing backoff counters with a relatively longer value, and then decreasing the value upon transmission failure and retrial.

8. (Currently amended) ~~The method for a distributed medium access protocol of claim 1, which further comprises:~~ A method for a distributed medium access protocol that schedules transmission of different types of packets on a channel based on a service quality specification for each type of packet, comprising the steps of:

determining at a plurality of nodes in an access network, an urgency class of pending packets according to a scheduling algorithm;

transmitting pending packets in a given urgency class before transmitting packets of a lower urgency class;

remembering the number of transmission attempts by a node for the last transmission of same node;

estimating from said number of transmission attempts a current congestion experienced;

adjusting a backoff counter to current congestion levels to provide a dispersion of packet traffic bursts;

remembering the number of transmission attempts by a node for the last transmission of same node;

estimating from said number of transmission attempts the current congestion experienced; and

adjusting a persistence probability to current congestion levels to provide a dispersion of packet traffic bursts.

9. (Currently amended) ~~The method for a distributed medium access protocol of claim 1, which further comprises:~~ A method for a distributed medium access protocol that schedules transmission of different types of packets on a channel based on a service quality specification for each type of packet, comprising the steps of:

determining at a plurality of nodes in an access network, an urgency class of pending packets according to a scheduling algorithm;

transmitting pending packets in a given urgency class before transmitting packets of a lower urgency class;

remembering the number of transmission attempts by a node for the last transmission of same node;

estimating from said number of transmission attempts a current congestion experienced;

adjusting a backoff counter to current congestion levels to provide a dispersion of packet traffic bursts;

broadcasting with each transmission the number of transmission attempts by a node;

estimating from said number of transmission attempts received from other nodes the current congestion experienced; and

adjusting a persistence probability to current congestion levels to provide a dispersion of packet traffic bursts.

10. (Currently amended) ~~The method for a distributed medium access protocol of claim 1, which further comprises:~~ A method for a distributed medium access protocol

that schedules transmission of different types of packets on a channel based on a service quality specification for each type of packet, comprising the steps of:

determining at a plurality of nodes in an access network, an urgency class of pending packets according to a scheduling algorithm;

transmitting pending packets in a given urgency class before transmitting packets of a lower urgency class;

remembering the number of transmission attempts by a node for the last transmission of same node;

estimating from said number of transmission attempts a current congestion experienced;

adjusting a backoff counter to current congestion levels to provide a dispersion of packet traffic bursts;

broadcasting with each transmission the number of transmission attempts by a node;

estimating from said number of transmission attempts received from other nodes the current congestion experienced; and

adjusting a persistence probability to current congestion levels to provide a dispersion of packet traffic bursts.

11. (Currently amended) ~~The method for a distributed medium access protocol of claim 1, which further comprises:~~ A method for a distributed medium access protocol that schedules transmission of different types of packets on a channel based on a service quality specification for each type of packet, comprising the steps of:

determining at a plurality of nodes in an access network, an urgency class of pending packets according to a scheduling algorithm;

transmitting pending packets in a given urgency class before transmitting packets of a lower urgency class;

remembering the number of transmission attempts by a node for the last transmission of same node;

estimating from said number of transmission attempts a current congestion experienced;

adjusting a backoff counter to current congestion levels to provide a dispersion of packet traffic bursts;

remembering the number of transmission attempts for packets of every urgency class by a node for the last transmission in that class of same node;

estimating from said number of transmission attempts the current congestion experienced by the urgency class of a pending packet; and

adjusting a persistence probability for the pending packet to current congestion levels to provide a dispersion of packet traffic bursts.

12. (Currently amended) ~~The method for a distributed medium access protocol of claim 1, which further comprises:~~ A method for a distributed medium access protocol that schedules transmission of different types of packets on a channel based on a service quality specification for each type of packet, comprising the steps of:

determining at a plurality of nodes in an access network, an urgency class of pending packets according to a scheduling algorithm;

transmitting pending packets in a given urgency class before transmitting packets of a lower urgency class;

remembering the number of transmission attempts by a node for the last transmission of same node;

estimating from said number of transmission attempts a current congestion experienced;

adjusting a backoff counter to current congestion levels to provide a dispersion of packet traffic bursts;

broadcasting with each transmission the number of transmission attempts by a node and the assigned urgency class;

estimating from said number of transmission attempts received from other nodes the current congestion experienced by the urgency class of the pending packet; and

adjusting a persistence probability of the pending packet to current congestion levels to provide a dispersion of packet traffic bursts.

13. (Currently amended) ~~The method for a distributed medium access protocol of claim 1, which further comprises:~~ A method for a distributed medium access protocol that schedules transmission of different types of packets on a channel based on a service quality specification for each type of packet, comprising the steps of:

determining at a plurality of nodes in an access network, an urgency class of pending packets according to a scheduling algorithm;

transmitting pending packets in a given urgency class before transmitting packets of a lower urgency class;

remembering the number of transmission attempts by a node for the last transmission of same node;

estimating from said number of transmission attempts a current congestion experienced;

adjusting a backoff counter to current congestion levels to provide a dispersion of packet traffic bursts;

broadcasting with each transmission the number of transmission attempts by a node and the assigned urgency class;

estimating from said number of transmission attempts received from other nodes the current congestion experienced by the urgency class of the pending packet; and

adjusting a persistence probability of the pending packet to current congestion levels to provide a dispersion of packet traffic bursts.

14. (Currently Amended) ~~The method for a distributed medium access protocol of claim 1, which further comprises:~~ A method for a distributed medium access protocol that schedules transmission of different types of packets on a channel based on a service quality specification for each type of packet, comprising the steps of:

determining at a plurality of nodes in an access network, an urgency class of pending packets according to a scheduling algorithm;

transmitting pending packets in a given urgency class before transmitting packets of a lower urgency class;

remembering the number of transmission attempts by a node for the last transmission of same node;

estimating from said number of transmission attempts a current congestion experienced;

adjusting a backoff counter to current congestion levels to provide a dispersion of packet traffic bursts; and

initializing a persistence probability with a relatively lower value, and then increasing the value upon transmission failure and retrial.

15. (Currently amended) ~~The method for a distributed medium access protocol of claim 1, which further comprises:~~ A method for a distributed medium access protocol that schedules transmission of different types of packets on a channel based on a service quality specification for each type of packet, comprising the steps of:

determining at a plurality of nodes in an access network, an urgency class of pending packets according to a scheduling algorithm;

transmitting pending packets in a given urgency class before transmitting packets of a lower urgency class;

remembering the number of transmission attempts by a node for the last transmission of same node;

estimating from said number of transmission attempts a current congestion experienced;

adjusting a backoff counter to current congestion levels to provide a dispersion of packet traffic bursts; and

establishing criteria for cancellation of transmission of a packet associated with packet delay.

Claims 16–65. Cancelled

66. (Currently amended) ~~The method for a medium access protocol of claim 65, which further comprises:~~ A method for a medium access protocol that schedules transmission of packets from a plurality of nodes on a channel, comprising the steps of:

employing a backoff countdown procedure for channel access;

monitoring traffic intensity changes continuously and providing feedback to the MAC sublayer of contending nodes;

adjusting a backoff counter of each of a plurality of contending nodes to current congestion levels in time intervals shorter than required for the completion of a transmission attempt;

adjusting such backoff counter in a way that enables older packets to be transmitted before newer ones with high probability, thus minimizing a latency jitter;

adjusting such backoff counter in a way that their relative ordering is preserved;

determining the magnitude of an adjustment factor that is larger for greater congestion;

adjusting a backoff counter of the pending packet to increased congestion levels by increasing the backoff counter values associated with each of a plurality of contending nodes by scaling up such counter through the addition of an increment that is proportional to the current counter value and increases with the scaling factor; and

adding a random integer number drawn from a range bounded by 0 and said adjustment factor.

67. (Currently amended) ~~The method for a medium access protocol of claim 65, which further comprises:~~ A method for a medium access protocol that schedules transmission of packets from a plurality of nodes on a channel, comprising the steps of:

employing a backoff countdown procedure for channel access;

monitoring traffic intensity changes continuously and providing feedback to the MAC sublayer of contending nodes;

adjusting a backoff counter of each of a plurality of contending nodes to current congestion levels in time intervals shorter than required for the completion of a transmission attempt;

adjusting such backoff counter in a way that enables older packets to be transmitted before newer ones with high probability, thus minimizing a latency jitter;

adjusting such backoff counter in a way that their relative ordering is preserved;

determining the magnitude of an adjustment factor that is larger for lower congestion; and

adjusting a backoff counter of the pending packet to decreased congestion levels by decreasing the backoff counter values associated with each of a plurality of contending nodes by scaling down in inverse proportion to said scaling factor.

68. (Original) The method for a medium access protocol of claim 66, which further comprises:

selecting the magnitude of the adjustment factor at a given congestion level so that it is smaller for higher priority nodes, thus allowing higher priority packets to be transmitted earlier.

69. (Original) The method for a medium access protocol of claim 67, which further comprises:

selecting the magnitude of the adjustment factor at a given congestion level so that it is greater for higher priority nodes, thus allowing higher priority packets to be transmitted earlier.

70. (Original) The method for a medium access protocol of claim 66, which further comprises:

selecting the magnitude of the adjustment factor at a given congestion level so that it is smaller for nodes subscribing to a higher premium service, thus enabling higher premium packets to be transmitted earlier.

71. (Original) The method for a medium access protocol of claim 67, which further comprises:

selecting the magnitude of the adjustment factor at a given congestion level so that it is greater for nodes subscribing to a higher premium service, thus allowing higher premium packets to be transmitted earlier.

Claims 72–80. Cancelled

81. (Currently Amended) ~~The method for a medium access protocol of claim 72, which further comprises:~~ A method for a medium access protocol that schedules transmission of packets from a plurality of nodes on a channel, comprising the steps of:

employing a backoff countdown procedure for random channel access;

monitoring traffic continuously and providing feedback to the MAC sublayer of contending nodes;

adjusting at least one parameter of a random distribution from which a backoff counter is drawn upon initiation of a transmission attempt for each of a plurality of contending nodes to reflect current congestion levels;

determining the magnitude of an adjustment factor R that is larger for greater contention levels; and

adjusting the backoff distribution parameters to increased contention levels by increasing parameter values associated with each of a plurality of contending nodes by scaling up such parameters through the addition of an increment that is proportional to a current counter value and increases with the scaling factor (1+R).

82. (Currently amended) ~~The method for a medium access protocol of claim 72, which further comprises:~~ A method for a medium access protocol that schedules transmission of packets from a plurality of nodes on a channel, comprising the steps of:

employing a backoff countdown procedure for random channel access;

monitoring traffic continuously and providing feedback to the MAC sublayer of contending nodes;

adjusting at least one parameter of a random distribution from which a backoff counter is drawn upon initiation of a transmission attempt for each of a plurality of contending nodes to reflect current congestion levels;

determining the magnitude of an adjustment factor D that is larger for lower contention levels; and

adjusting the backoff distribution parameters to decreased contention levels by decreasing such parameters associated with each of a plurality of contending nodes by scaling down in inverse proportion to the scaling factor (1+D).

83. (Currently amended) ~~The method for a medium access protocol of claim 73, which further comprises:~~ A method for a medium access protocol that schedules transmission of packets from a plurality of nodes on a channel, comprising the steps of:

employing a backoff countdown procedure for random channel access;

monitoring traffic continuously and providing feedback to the MAC sublayer of contending nodes;

adjusting at least one parameter of a random distribution from which a backoff counter is drawn upon initiation of a transmission attempt for each of a plurality of contending nodes to reflect current congestion levels;

adjusting a backoff counter of each of a plurality of backlogged nodes to reflect current contention levels in time intervals shorter than required for the completion of a transmission attempt;

adjusting such backoff counters in a way that enables older packets to be transmitted before newer ones with high probability, thus minimizing the latency jitter; and

adjusting such backoff counter in a way that their relative ordering is preserved.

84. (Original) The method for a medium access protocol of claim 83, which further comprises:

determining the magnitude of an integer adjustment factor R that is larger for greater contention levels;

adjusting a backoff counter of the pending packet to increased contention levels by increasing the backoff counter values associated with each of a plurality of backlogged nodes by scaling up such counter through the addition of an increment that is proportional to the current counter value and increases with the scaling factor (1+R); and

adding a random integer number drawn from a range bounded by 0 and said adjustment factor R.

85. (Previously presented) The method for a medium access protocol of 83, which further comprises:

determining the magnitude of a fractional adjustment factor R that is larger for greater contention levels;

adjusting a backoff counter of the pending packet to increased contention levels by increasing the backoff counter values associated with each of a plurality of backlogged nodes by scaling up such counter through a multiplication of the current counter value by a term that increases with the scaling factor (1+R); and

assigning, through statistical means, an integer value to such counter with expected value equal to a multiplication product resulting from said multiplication.

86. (Original) The method for a medium access protocol of claim 83, which further comprises:

determining the magnitude of an integer adjustment factor D that is larger for lower contention levels; and

adjusting a backoff counter of the pending packet to decreased contention levels by decreasing the backoff counter values associated with each of a plurality of backlogged nodes by scaling down in inverse proportion to the scaling factor (1+D).

87. (Previously presented) The method for a medium access protocol of claim 83, which further comprises:

determining the magnitude of a fractional adjustment factor D that is larger for lower congestion;

adjusting a backoff counter of the pending packet to increased contention levels by increasing the backoff counter values associated with each of a plurality of backlogged nodes by scaling down such counter through a multiplication of the current counter value by a term that increases in inverse proportion to the scaling factor (1+D); and

assigning, through statistical means, an integer value to such counter with expected value equal to a multiplication product resulting from said multiplication.

88. (Original) The method for a medium access protocol of claim 81, which further comprises:

while monitoring the contention levels, performing a scaling adjustment when its magnitude exceeds a specified step size, thus maintaining responsive adjustment with an efficient computation load.

89. (Original) The method for a medium access protocol of claim 82, which further comprises:

while monitoring the contention levels, performing a scaling adjustment when its magnitude exceeds a specified step size, thus maintaining responsive adjustment with an efficient computation load.

90. (Original) The method for a medium access protocol of claim 84, which further comprises:

while monitoring the contention levels, performing a scaling adjustment when its magnitude exceeds a specified step size, thus maintaining responsive adjustment with an efficient computation load.

91. (Original) The method for a medium access protocol of claim 85, which further comprises:

while monitoring the contention levels, performing a scaling adjustment when its magnitude exceeds a specified step size, thus maintaining responsive adjustment with an efficient computation load.

92. (Original) The method for a medium access protocol of claim 81, which further comprises:

selecting the magnitude of the adjustment factor at a given contention level so that it is smaller for higher priority nodes, thus allowing higher priority packets to be transmitted earlier.

93. (Original) The method for a medium access protocol of claim 84, which further comprises:

selecting the magnitude of the adjustment factor at a given contention level so that it is smaller for higher priority nodes, thus allowing higher priority packets to be transmitted earlier.

94. (Original) The method for a medium access protocol of claim 85, which further comprises:

selecting the magnitude of the adjustment factor at a given contention level so that it is smaller for higher priority nodes, thus allowing higher priority packets to be transmitted earlier.

95. (Original) The method for a medium access protocol of claim 82, which further comprises:

selecting the magnitude of the adjustment factor at a given contention level so that it is greater for higher priority nodes, thus allowing higher priority packets to be transmitted earlier.

96. (Original) The method for a medium access protocol of claim 86, which further comprises:

selecting the magnitude of the adjustment factor at a given contention level so that it is greater for higher priority nodes, thus allowing higher priority packets to be transmitted earlier.

97. (Original) The method for a medium access protocol of claim 87, which further comprises:

selecting the magnitude of the adjustment factor at a given contention level so that it is greater for higher priority nodes, thus allowing higher priority packets to be transmitted earlier.